SITE-SPECIFIC UFP QUALITY ASSURANCE PROJECT PLAN
UNIMATIC MANUFACTURING CORPORATION SITE
25 Sherwood Lane, Fairfield, Essex County, New Jersey 07004

Prepared By:

Removal Support Team 2
Weston Solutions, Inc.
Northeast Division
Edison, New Jersey 08837

DC No.: RST 2-02-F-2412
TDD No.: TO-0027-0063
EPA Contract No.: EP-W-06-072

June 2013

TABLE OF CONTENTS

CROSSWALK 1
QAPP Worksheet #1: Title and Approval Page 4
QAPP Worksheet #2: QAPP Identifying Information 5
QAPP Worksheet #3: Distribution List 6
QAPP Worksheet #4: Project Personnel Sign-Off Sheet 7
QAPP Worksheet #5: Project Organizational Chart 8
QAPP Worksheet #6: Communication Pathways 9
QAPP Worksheet #7: Personnel Responsibilities and Qualifications Table 9
QAPP Worksheet #8: Special Personnel Training Requirements Table 10
QAPP Worksheet #9: Project Scoping Session Participants Sheet 11
QAPP Worksheet #10: Problem Definition 12
QAPP Worksheet #10: Problem Definition (Concluded) 13
QAPP Worksheet #11: Project Quality Objectives/Systematic Planning Process Statement. 14
QAPP Worksheet #12: Measurement Performance Criteria Table 15
QAPP Worksheet #13: Secondary Data Criteria and Limitations Table 16
QAPP Worksheet #14: Summary of Project Tasks 17
QAPP Worksheet #14: Summary of Project Tasks (Concluded) 19
QAPP Worksheet #15: Reference Limits and Evaluation Table 20
QAPP Worksheet #16: Project Schedule/Timeline Table 21
QAPP Worksheet #17: Sampling Design and Rationale 22
QAPP Worksheet #18: Sampling Locations and Methods/SOP Requirements Table 23
QAPP Worksheet #19: Analytical SOP Requirements Table 23
QAPP Worksheet #20: Field Quality Control Sample Summary Table 24
QAPP Worksheet #21: Project Sampling SOP References Table 24
QAPP Worksheet #23: Analytical SOP References Table 25
QAPP Worksheet #24: Analytical Instrument Calibration Table 26
QAPP Worksheet #25: Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table 26
QAPP Worksheet #26: Sample Handling System 27
QAPP Worksheet #27: Sample Custody Requirements 28
QAPP Worksheet #28: QC Samples Table 30
QAPP Worksheet #29: Project Documents and Records Table 31
QAPP Worksheet #30: Analytical Services Table 32
QAPP Worksheet #31: Planned Project Assessments Table 33
QAPP Worksheet #32: Assessment Findings and Corrective Action Responses 34
QAPP Worksheet #33: QA Management Reports Table 35
QAPP Worksheet #34: Verification (Step I) Process Table 36
QAPP Worksheet #35: Validation (Steps IIa and IIb) Process Table 37
QAPP Worksheet #36: Validation (Steps IIa and IIb) Summary Table 37
QAPP Worksheet #37: Usability Assessment 38

TABLE OF CONTENT

Attachment A – Site Location Map
Attachment B – Sample Inventory Plan
Attachment C – Sampling SOPs (EPA/ERT SOP #2001 and 2011)

LIST OF ACRONYMS

ADR	Automated Data Review
ANSETS	Analytical Services Tracking System
AOC	Acknowledgment of Completion
ASTM	American Society for Testing and Materials
CEO	Chief Executive Officer
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CLP	Contract Laboratory Program
CFM	Contract Financial Manager
CO	Contract Officer
COI	Conflict of Interest
COO	Chief Operations Officer
CRDL	Contract Required Detection Limit
CRTL	Core Response Team Leader
CRQL	Contract Required Quantitation Limit
CQLOSS	Corporate Quality Leadership and Operations Support Services
CWA	Clean Water Act
DCN	Document Control Number
DESA	Division of Environmental Science and Assessment
DI	Deionized Water
DPO	Deputy Project Officer
DQI	Data Quality Indicator
DQO	Data Quality Objective
EM	Equipment Manager
EDD	Electronic Data deliverable
ENVL	Environmental Unit Leader
EPA	Environmental Protection Agency
ERT	Environmental Response Team
FASTAC	Field and Analytical Services Teaming Advisory Committee
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/MS	Gas Chromatography/Mass Spectrometry
HASP	Health and Safety Plan
HRS	Hazard Ranking System
HSO	Health and Safety Officer
ITM	Information Technology Manager
LEL	Lower Explosive Limit
MSA	Mine Safety Appliances
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NELAC	National Environmental Laboratory Accreditation Conference
NELAP	National Environmental Laboratory Accreditation Program
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration

LIST OF ACRONYMS (Concluded)

OSWER	Office of Solid Waste and Emergency Response
PARCCS	Precision, Accuracy, Representativeness, Completeness, Comparability, Sensitivity
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PIO	Public Information Officer
PM	Program Manager
PO	Project Officer
PRP	Potentially Responsible Party
PT	Proficiency Testing
QA	Quality Assurance
QAL	Quality Assurance Leader
QAPP	Quality Assurance Project Plan
QMP	Quality Management Plan
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
RC	Readiness Coordinator
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
RSCC	Regional Sample Control Coordinator
RST	Removal Support Team
SARA	Superfund Amendments and Reauthorization Act
SEDD	Staged Electronic Data Deliverable
SOP	Standard Operating Practice
SOW	Statement of Work
SPM	Site Project Manager
START	Superfund Technical Assessment and Response Team
STR	Sampling Trip Report
TAL	Target Analyte List
TCL	Total Compound List
TDD	Technical Direction Document
TDL	Technical Direction Letter
TO	Task Order
TQM	Total Quality Management
TSCA	Toxic Substances Control Act
UFP	Uniform Federal Policy
VOA	Volatile Organic Analysis

CROSSWALK

The following table provides a "cross-walk" between the QAPP elements outlined in the Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP Manual), the necessary information, and the location of the information within the text document and corresponding QAPP Worksheet. Any QAPP elements and required information that are not applicable to the project are circled.

QAPP Element(s) and Corresponding Section(s) of UFP-QAPP Manual	Required Information	Crosswalk to QAPP Section	Crosswalk to QAPP Worksheet No.
Project Management and Objectives			
2.1 Title and Approval Page	- Title and Approval Page	Approval Page	1
2.2 Document Format and Table of Contents 2.2.1 Document Control Format 2.2.2 Document Control Numbering System 2.2.3 Table of Contents 2.2.4 QAPP Identifying Information	- Table of Contents - QAPP Identifying Information	TOC Approval Page	2
2.3 Distribution List and Project Personnel Sign-Off Sheet 2.3.1 Distribution List 2.3.2 Project Personnel Sign-Off Sheet	- Distribution List - Project Personnel Sign-Off Sheet	Approval Page	3 4
2.4 Project Organization 2.4.1 Project Organizational Chart 2.4.2 Communication Pathways 2.4.3 Personnel Responsibilities and Qualifications 2.4.4 Special Training Requirements and Certification	- Project Organizational Chart - Communication Pathways - Personnel Responsibilities and Qualifications - Special Personnel Training Requirements	2	5 6 7 8
2.5 Project Planning/Problem Definition 2.5.1 Project Planning (Scoping) 2.5.2 Problem Definition, Site History, and Background	- Project Planning Session Documentation (including Data Needs tables) - Project Scoping Session Participants Sheet - Problem Definition, Site History, and Background - Site Maps (historical and present)	1	9 10
2.6 Project Quality Objectives and Measurement Performance Criteria 2.6.1 Development of Project Quality Objectives Using the Systematic Planning Process 2.6.2 Measurement Performance Criteria	- Site-Specific PQOs - Measurement Performance Criteria	3	11 12
2.7 Secondary Data Evaluation	- Sources of Secondary Data and Information - Secondary Data Criteria and Limitations	1 2	13

QAPP Element(s) and Corresponding Section(s) of UFP-QAPP Manual	Required Information	Crosswalk to QAPP Section	Crosswalk to QAPP Worksheet No.
2.8 Project Overview and Schedule 2.8.1 Project Overview 2.8.2 Project Schedule	- Summary of Project Tasks - Reference Limits and Evaluation - Project Schedule/Timeline	4	14 15 16
Measurement/Data Acquisition			
3.1 Sampling Tasks 3.1.1 Sampling Process Design and Rationale 3.1.2 Sampling Procedures and Requirements 3.1.2.1 Sampling Collection Procedures 3.1.2.2 Sample Containers, Volume, and Preservation 3.1.2.3 Equipment/Sample Containers Cleaning and Decontamination Procedures 3.1.2.4 Field Equipment Calibration, Maintenance, Testing, and Inspection Procedures 3.1.2.5 Supply Inspection and Acceptance Procedures 3.1.2.6 Field Documentation Procedures	- Sampling Design and Rationale - Sample Location Map - Sampling Locations and Methods/SOP Requirements - Analytical Methods/SOP Requirements - Field Quality Control Sample Summary - Sampling SOPs - Project Sampling SOP References - Field Equipment Calibration, Maintenance, Testing, and Inspection	5	17 18 19 20 21 22
3.2 Analytical Tasks 3.2.1 Analytical SOPs 3.2.2 Analytical Instrument Calibration Procedures 3.2.3 Analytical Instrument and Equipment Maintenance, Testing, and Inspection Procedures 3.2.4 Analytical Supply Inspection and Acceptance Procedures	- Analytical SOPs - Analytical SOP References - Analytical Instrument and Equipment Maintenance, Testing, and Inspection	6	23 25
3.3 Sample Collection Documentation, Handling, Tracking, and Custody Procedures 3.3.1 Sample Collection Documentation 3.3.2 Sample Handling and Tracking System 3.3.3 Sample Custody	- Sample Collection Documentation Handling, Tracking, and Custody SOPs - Sample Container Identification - Sample Handling Flow Diagram - Example Chain-of-Custody Form and Seal	7	26 27

QAPP Element(s) and Corresponding Section(s) of UFP-QAPP Manual	Required Information	Crosswalk to QAPP Section	Crosswalk to QAPP Worksheet No.
3.4 Quality Control Samples 3.4.1 Sampling Quality Control Samples 3.4.2 Analytical Quality Control Samples	- QC Samples - Screening/Confirmatory Analysis Decision Tree	5	28
3.5 Data Management Tasks 3.5.1 Project Documentation and Records 3.5.2 Data Package Deliverables 3.5.3 Data Reporting Formats 3.5.4 Data Handling and Management 3.5.5 Data Tracking and Control	- Project Documents and Records - Analytical Services - Data Management SOPs	6	29 30
Assessment/Oversight			
4.1 Assessments and Response Actions 4.1.1 Planned Assessments 4.1.2 Assessment Findings and Corrective Action Responses	- Assessments and Response Actions - Planned Project Assessments - Audit Checklists - Assessment Findings and Corrective Action Responses	8	31 32
4.2 QA Management Reports	- QA Management Reports		33
4.3 Final Project Report	- Final Report(s)		
Data Review			
5.1 Overview			
5.2 Data Review Steps 5.2.1 Step I: Verification 5.2.2 Step II: Validation 5.2.2.1 Step IIa Validation Activities 5.2.2.2 Step IIb Validation Activities 5.2.3 Step III: Usability Assessment 5.2.3.1 Data Limitations and Actions from Usability Assessment 5.2.3.2 Activities	- Verification (Step I) Process - Validation (Steps IIa and IIb) Process - Validation (Steps IIa and IIb) Summary - Usability Assessment	9	34 35 36 37

QAPP Worksheet #1: Title and Approval Page

Title: Site-Specific UFP Quality Assurance Project Plan
Site Name/Project Name: Unimatic Manufacturing Corporation
Site Location: Fairfield, New Jersey
Revision Number: 00
Revision Date: Not Applicable

Weston Solutions, Inc
Lead Organization

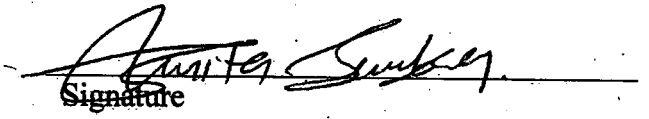
Maria Markoudakis
Weston Solutions, Inc.
1090 King Georges Post Road, Suite 201
Edison, NJ 08837
Email: maria.markoudakis@westonsolutions.com

Preparer's Name and Organizational Affiliation

31 May 2013
Preparation Date (Day/Month/Year)

Site Project Manager: 
Signature

Peter Lisichenko/Weston Solutions, Inc.
Printed Name/Organization/Date

QA Officer/Technical Reviewer: 
Signature

Smita Sumbaly/Weston Solution, Inc.
Printed Name/Organization/Date

EPA, Region II On-Scene Coordinator (OSC):
Signature

David Rosoff/EPA, Region II
Printed Name/Organization/Date

EPA, Region II Quality Assurance Officer (QAO):
Signature

Printed Name/Organization/Date

Document Control Number: RST 2-02-F-2412

QAPP Worksheet #2: QAPP Identifying Information

Site Name/Project Name: Unimatic Manufacturing Corporation
Site Location: 25 Sherwood Lane, Fairfield, Essex County, New Jersey 07004
Operable Unit: 00
Title: Site-Specific UFP Quality Assurance Project Plan
Revision Number: 00
Revision Date: Not Applicable

1. **Identify guidance used to prepare QAPP:**
   Uniform Federal Policy for Quality Assurance Project Plans.
   Refer to EPA, CLP Methods

2. **Identify regulatory program:** EPA, Region II

3. **Identify approval entity:** EPA, Region II

4. **Indicate whether the QAPP is a generic or a site-specific QAPP.**

5. **List dates of scoping sessions that were held:** April 18, 2013

6. **List dates and titles of QAPP documents written for previous site work, if applicable:**
   - September 5, 2012 QAPP for soil sampling, DCN#: RST 2-02-F-2120
   - October 11, 2013 QAPP for air, wipe and chip sampling, DCN#: RST 2-02-F-2147

7. **List organizational partners (stakeholders) and connection with lead organization:**
   - None

8. **List data users:** EPA, Region II (see Worksheet #4 for individuals)

9. **If any required QAPP elements and required information are not applicable to the project, then provide an explanation for their exclusion below:** QAPP Worksheet #22: Field Calibration, Maintenance, Testing, and Inspection Table is not required for the project as no equipment demanding calibration will be necessary.

10. **Document Control Number:** RST 2-02-F-2412

QAPP Worksheet #3: Distribution List

[List those entities to which copies of the approved site-specific QAPP, subsequent QAPP revisions, addenda, and amendments are sent]

QAPP Recipient	Title	Organization	Telephone Number	Fax Number	E-mail Address	Document Control Number
David Rosoff	On-Scene Coordinator	EPA, Region II	(732) 906-6879	(732) 906-6182	rosoff.david@epa.epamail.gov	RST 2-02-F-2412
Timothy Benton	Operations Leader	Weston Solutions, Inc., RST 2	(732) 585-4425	(732) 225-7037	tim.benton@epa.epamail.gov	RST 2-02-F-2412
Peter Lisichenko	Site Project Manager	Weston Solutions, Inc., RST 2	(732) 585-4411	(732) 225-7037	Peter.lisichenko@westonsolutions.com	RST 2-02-F-2412
Smita Sumbaly	QA Officer	Weston Solutions, Inc., RST 2	(732) 585-4410	(732) 225-7037	S.Sumbaly@westonsolutions.com	RST 2-02-F-2412
Site TDD File	RST 2 Site TDD File	Weston Solutions, Inc., RST 2	Not Applicable	Not Applicable	Not Applicable	-

QAPP Worksheet #4: Project Personnel Sign-Off Sheet

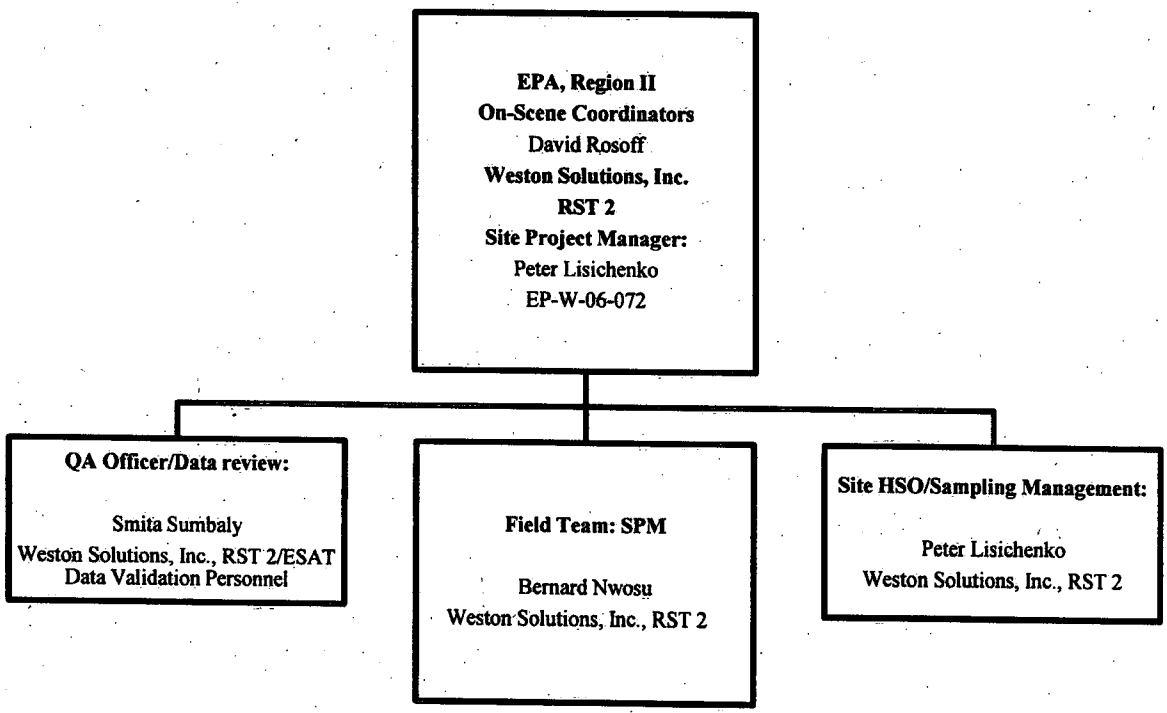
[Copies of this form signed by key project personnel from each organization to indicate that they have read the applicable sections of the site-specific QAPP and will perform the tasks as described; add additional sheets as required. Ask each organization to forward signed sheets to the central project file.]

Organization: Weston Solutions, Inc., RST 2

Project Personnel	Title	Telephone Number	Signature	Date QAPP Read
David Rosoff	EPA, Region II, On-Scene Coordinator	(732) 906-6879		
Peter Lisichenko	Site Project Manager and Health and Safety Officer, QA/QC, RST 2	(732) 585-4411		5/31/13
Tim Benton	HSO, RST 2	(732) 585-4425		5/31/13
Smita Sumbaly	QAO, RST 2	(732) 585-4410		
Bernard Nwosu	Field Personnel, RST 2	(732) 585-4413		5/31/13

QAPP Worksheet #5: Project Organizational Chart

Identify reporting relationship between all organizations involved in the project, including the lead organization and all contractor and subcontractor organizations. Identify the organizations providing field sampling, on-site and off-site analysis, and data review services, including the names and telephone numbers of all project managers, project team members, and/or project contacts for each organization.



Acronyms:

SPM: Site Project Manager
HSO: Health & Safety Officer

QAPP Worksheet #6: Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure
Point of contact with EPA OSC	Site Project Manager, Weston Solutions, Inc., RST 2	Peter Lisichenko SPM	(732) 585-4411	All technical, QA and decision-making matters in regard to the project (verbal, written or electronic)
Adjustments to QAPP	Site Project Manager, Weston Solutions, Inc., RST 2	Peter Lisichenko, SPM	732) 585-4411	QAPP approval dialogue
Health and Safety On-Site Meeting	HSO, Weston Solutions, Inc., RST 2	Peter Lisichenko, SPM	732) 585-4411	Explain Site hazards, personnel protective equipment, hospital location, etc.

OSC: On-Scene Coordinator
SPM: Site Project Manager
HSO: Health and Safety Officer

QAPP Worksheet #7: Personnel Responsibilities and Qualifications Table

Name	Title	Organizational Affiliation	Responsibilities	Education and Experience Qualifications
David Rosoff	EPA On-Scene Coordinator	EPA, Region II	All project coordination, direction and decision making.	NA
Peter Lisichenko	HSO, Site Project Manager, Technical Reviewer RST 2	Weston Solutions, Inc., RST 2	Team lead, implementing and executing the technical, QA and Health & Safety during sampling event and sample collection, sample collection	13 years*
Bernard Nwosu	Field Team	Weston Solutions, Inc., RST 2	Sample Collection	3 years*

*All RST 2 members, including subcontractor's resumes are in possession of RST 2 Program Manager, EPA Project Officer, and Contracting officers.

QAPP Worksheet #8: Special Personnel Training Requirements Table

Project Function	Specialized Training By Title or Description of Course	Training Provider	Training Date	Personnel / Groups Receiving Training	Personnel Titles / Organizational Affiliation	Location of Training Records / Certificates[1]
[Specify location of training records and certificates for samplers]						
QAPP Training	This training is presented to all RST 2 personnel to introduce the provisions, requirements, and responsibilities detailed in the UFP QAPP. The training presents the relationship between the site-specific QA Project Plans (QAPPs), SOPs, work plans, and the Generic QAPP. QAPP refresher training will be presented to all employees following a major QAPP revision.	Weston Solutions, Inc., QAO	As needed	All RST 2 field personnel upon initial employment and as refresher training	Weston Solutions, Inc.	Weston Solutions, Inc., EHS Database
Health and Safety Training	Health and safety training will be provided to ensure compliance with Occupational Safety and Health Administration (OSHA) as established in 29 CFR 1910.120.	Weston Solutions, Inc., HSO	Yearly at a minimum	All Employees upon initial employment and as refresher training every year	Weston Solutions, Inc.	Weston Solutions, Inc., EHS Database
Others	FORMS II Lite, Scribe, ICS 100 and 200, and Air Monitoring Equipment Trainings provided to all employees	Weston Solutions, Inc., QAO/Group Leader's	Upon initial employment and as needed			
	Dangerous Goods Shipping	Weston Solutions, Inc., HSO	Every 2 years			

All team members are trained in the concepts and procedures in recognizing opportunities for continual improvement, and the approaches required to improve procedures while maintaining conformance with legal, technical, and contractual obligations.

[1] All RST 2 members, including subcontractor's certifications are in possession of RST 2 HSO

QAPP Worksheet #9: Project Scoping Session Participants Sheet

Site Name/Project Name: Unimatic Manufacturing Corporation
Site Location: 25 Sherwood Lane, Fairfield, Essex County, New Jersey 07004
Operable Unit: 00
Date of Sessions: April 18, 2013
Scoping Session Purpose: To discuss questions, comments, and assumptions regarding technical issues involved with the sampling activities.

Name	Title	Affiliation	Phone #	E-mail Address	*Project Role
David Rosoff	EPA OSC	EPA, Region II	(732) 321-4345	rosoff.david@epa.epamail.gov	OSC
Peter Lisichenko	Group Leader	Weston Solutions, Inc., RST 2	(732) 585-4411	peter.lisichenko@westonsolutions.com	Project Site Manager/ QA Officer/ Technical Reviewer

Comments/Decisions: The field activities to be conducted by Weston Solutions, Inc. Removal Support Team 2 (RST 2) as part of the third phase of the Removal Assessment of the Unimatic Manufacturing Corporation Site (the Site) will begin in June 2013. As part of the third phase of the Removal Assessment, RST 2 is tasked with the collection of approximately 70 wipe samples from the facility's equipment and inventory (EI). As a result of elevated polychlorinated biphenyl (PCB) levels at the Site, the current occupants, Frameware, Inc. (Frameware), will be vacating the premises and moving operations to a new location. At the direction of the U.S. Environmental Protection Agency (EPA), Frameware assessed the EI within the facility and identified items needed at the new location as "priority". Following a walk-through with EPA and Frameware to review the "priority" items, RST 2 began a survey, which included pictures of all "priority" items and the identification of two to five sample locations per item. Items were classified by room name and type (Bin, Cabinet, Cart/Dolly, Inventory, Machine, Rack, Tool or Workspace) and each of the proposed sample locations were photographed and assigned an identification number. At the conclusion of the inventory, approximately 70 wipe samples will be taken within the facility and submitted for TCL PCB analysis.

Action Items: The RST 2 Analytical request form was submitted on April 15, 2013.

Consensus Decisions: The third phase of the Removal Assessment sampling event at the Site will begin in June 2013 and last approximately 2 days.

QAPP Worksheet #10: Problem Definition

PROBLEM DEFINITION

The Unimatic Manufacturing Corporation operated an aluminum die casting manufacturing business at this Site from 1955 to 2001, using PCB-laden lubricants. PCB contamination of soil and water is well documented (2001 through 2010) through prior contaminations.

Based on previous investigations of the Site conducted by RST 2 in the Fall 2012, elevated levels of PCBs have been detected throughout the facility including the floors, walls, equipment, and ambient air. Due to the prevalent PCB contamination, Frameware will be vacating the premises and moving to a new location. The EI identified as "priority" by Frameware will be sampled prior to the move. EPA has requested that RST 2 conduct this new sampling event of the equipment and inventory utilizing wipe samples in June 2013.

The objective of the RST 2 sampling event is to collect wipe samples from the EI within the facility and determine if the items are in fact contaminated. EI tested positive for PCBs will either be decontaminated or left at the facility for disposal at a later time.

SITE HISTORY/CONDITIONS

The Site is located in an industrial area at the eastern end of Sherwood Lane in Fairfield, New Jersey. The Site contains a building and a partially paved parking lot. Originally the Site functioned as a tool shop and later became a facility for die-casting using PCB-laden lubricants. The building was constructed in 1955 on undeveloped land. Currently the property is under new ownership Frameware, a company that specializes in picture framing hardware. In 2001, the initial investigation by GZA Geo-Environmental, Inc. revealed the presence of a wastewater pipeline on the northeast area of the Site and filled materials in the unpaved portion of the Site north of the building. Due to the comprehensive history of the Site, please refer to the "Removal Assessment Investigation" document for the Unimatic Manufacturing, Inc. Site, Document Reference No.: RST 2-02-F-2289 dated February 2013.

The most recent event on Site was the second phase of the Removal Assessment in October 2012. On-site activities included the collection of samples from several media types including wipe, air, microvac and material samples. Based on this event, and all other previous investigations on site, elevated levels of PCBs have been detected throughout the facility including the floors, walls, equipment and ambient air. As a result, the current occupants, Frameware, will be vacating the premises and moving its operations to a new location. In order to ensure the PCB contamination does not spread beyond the area of concern and to the exterior of the building, wipe sampling of the facility's equipment and inventory (EI) is proposed.

QAPP Worksheet #10: Problem Definition (Concluded)

PROJECT DESCRIPTION

The field activities to be conducted by RST 2 as part of the third phase of the Removal Assessment will begin in June 2013. As part of this phase, RST 2 is tasked with the collection of approximately 70 wipe samples from the equipment and inventory items within the PCB contaminated facility. At the direction of the EPA, Frameware assessed the EI within the facility and identified those items that they determined as "priority" for use at the new facility. Those items they need immediately were tagged with manila tags with and labeled "priority". In April 2013, RST 2, EPA and Frameware conducted a facility walk-thourgh to review the tagged items and discuss the sampling plan. At the conclusion of the walk through, RST 2 began the survey. The survey included a picture of the item and the identification of two to five sample locations per items. The items were classified by room name and type (Bin, Cabinet, Cart / Dolly, Inventory, Machine, Rack, Tool or Workspace) and each of the proposed sample locations were assigned an identification number and photographed. The samples will be submitted to a CLP laboratory for TCL PCB analysis. The samples will be collected for definitive data deliverable.

OBSERVATION FROM ANY SITE RECONNAISSANCE REPORT

The Site is located in an industrial area at the eastern end of Sherwood Lane in Fairfield, New Jersey. The Site contains a building and a partially paved parking lot. Originally the Site functioned as a tool shop and later became a facility for die-casting using PCB-laden lubricants. The building was constructed in 1955 on undeveloped land. Currently the property is under new ownership, Frameware, a company that specializes in picture framing hardware.

PROJECT DECISION STATEMENTS

The analytical data from this wipe sampling event will be used to assist EPA and Frameware in determining which equipment and inventory items within the facility are contaminated with PCBs. This information will ultimately determine which items will be decontaminated for movement to the new facility, or left within the currently contaminated facility.

QAPP Worksheet #11: Project Quality Objectives/Systematic Planning Process Statement

Overall project objectives include: Sampling will be conducted by RST 2 to determine the facility's level of PCB contamination on equipment and inventory surfaces identified as "priority" by Frameware.

Who will use the data? Data will be used by EPA, Region II OSC.

What will the data be used for? The analytical data from this investigation will be used to determine if equipment and inventory within the facility is contaminated with PCBs. Decontamination or disposal of the items will depend upon the analytical results from the laboratory.

What types of data are needed?
Matrix: Wipes
Type of Data: Definitive Data Deliverable
Analytical Techniques: CLP Method SOMO1.2

Type of sampling equipments: Gauze
Access Agreement: Obtained by EPA, Region II OSC.
Sampling locations: Sample locations will be determined by the EPA OSC.
How much data are needed? Approximately 70 wipe samples will be collected from the Site.

How "good" does the data need to be in order to support the environmental decision? Sampling/analytical measurement performance criteria for Precision, Accuracy, Representativeness, Completeness, and Comparability (PARCC) parameters will be established. Refer to Worksheet #12, criteria for performance measurement for definitive data.

Where, when, and how should the data be collected/generated? The wipe samples to be collected from the Site have been determined by the EPA OSC and Frameware. All samples will be collected utilizing methods outlined in the Environmental Response Team (ERT) Standard Operating Procedures (SOPs). The sampling event is scheduled to begin in June 2013 and last approximately 2 days.

Who will collect and generate the data? The wipe samples will be collected by RST 2. Samples will be analyzed by an EPA CLP laboratory and validated by EPA's Environmental Services Assistance Team (ESAT).

How will the data be reported? All data will be reported by the assigned laboratory (Preliminary, Electronic, and Hard Copy format). The SPM will provide a STR, Status Reports, Maps/Figures, Analytical Report, and Data Validation Report to the EPA OSC.

How will the data be archived? Electronic data deliverables (EDDs) will be archived in a Scribe database.

QAPP Worksheet #12: Measurement Performance Criteria Table
Wipe /CLP SOMO 1.2

(UFP-QAPP Manual Section 2.6.2)
Complete this worksheet for each matrix, analytical group, and concentration level. Identify the data quality indicators (DQI), measurement performance criteria (MPC) and QC sample and/or activity used to assess the measurement performance for both the sampling and analytical measurement systems. Use additional worksheets if necessary. If MPC for specific DQI vary within an analytical parameter, i.e., MPC are analyte-specific, then provide analyte-specific MPC on an additional worksheet.

Matrix	Wipes
Analytical Group	TCL Aroclors (PCBs)
Concentration Level	Low/Medium

Sampling Procedure[1]	Analytical Method/SOP[2]	Data Quality Indicators (DQIs)	Measurement Performance Criteria	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
	SOM01.2	Accuracy (field)	No analyte > CRQL*	Field Blank	S & A
		Accuracy	No analyte > CRQL *	Lot Blank	S & A
		Accuracy (laboratory)	List compound specific %R	***LCS; MS/MSD**	A

Wipes field duplicate & MS/MSD samples will **not** be collected.
[1]Reference number from QAPP Worksheet #21.
[2]Reference number from QAPP Worksheet #23.
*Reference USEPA Region 2 SOP No. 37/Low/Medium Aroclor - Blank Type Criteria Table:
http://www.epa.gov/region02/qa/qa_documents/SOP_HW_37_FINAL-Rev-1.pdf
**MS/MSD – Reference CLP SOM01.2, Exhibit D, Table 3 for Criteria
***Laboratory Control Sample (LCS) – Reference CLP SOM01.2, Exhibit D, Table 2 for Criteria:
http://www.epa.gov/superfund/programs/clp/som1.htm

QAPP Worksheet #13: Secondary Data Criteria and Limitations Table

Any data needed for project implementation or decision making that are obtained from non-direct measurement sources such as computer databases, background information, technologies and methods, environmental indicator data, publications, photographs, topographical maps, literature files and historical data bases will be compared to the DQOs for the project to determine the acceptability of the data. Thus, for example, analytical data from historical surveys will be evaluated to determine whether they satisfy the validation criteria for the project and to determine whether sufficient data was provided to allow an appropriate validation to be done. If not, then a decision to conduct additional sampling for the site may be necessary.

Secondary Data	Data Source (Originating Organization, Report Title, and Date)	Data Generator(s) (Originating Org., Data Types, Data Generation/ Collection Dates)	How Data May Be Used (if deemed usable during data assessment stage)	Limitations on Data Use
Historical Investigation Date	Removal Assessment Investigation, Unimatic Manufacturing, Inc. DCN No. RST 2-02-F-2289 February 2013	RST 2 Phase I September 2012 – Surface Soil Sampling Phase II October 2012 – Multi-Media Sampling (Air, Chip, Wipe, Micro Vacuum and Material Samplings)	To assist in determining sample locations	None

QAPP Worksheet #14: Summary of Project Tasks

Sampling Tasks:

RST 2 is tasked with the collection of 70 wipe samples from the facility's equipment and inventory. At the direction of the EPA, Frameware assessed the equipment and inventory within the facility and identified all items needed immediately once it vacates the PCB contaminated Site and move operations to a new location. The items that Frameware determined as "priority" were labeled with manila tags. Wipe samples will be collected from these items and submitted to a CLP laboratory for TCL PCB analysis.

Analysis Tasks:

Wipe – PCB analysis – CLP SOW SOMO1.2

Quality Control Tasks:

The wipe samples will be collected for definitive data QA objective. No field duplicate or MS/MSD samples will be collected.

Data Management Tasks:

Activities under this project will be reported in status and trip reports and other deliverables (e.g., analytical reports, final reports) described herein. Activities will also be summarized in appropriate format for inclusion in monthly and annual reports.

The following deliverables will be provided under this project:

Trip Report: A trip report will be prepared to provide a detailed accounting of what occurred during each sampling mobilization. The trip report will be prepared within two weeks of the last day of each sampling mobilization. Information will be provided on time of major events, dates, and personnel on-site (including affiliations).

Maps/Figures: Maps depicting site layout, contaminant source areas, and sample locations will be included in the trip report, as appropriate.

Data Review: A review of the data generated under this plan will be undertaken. The assessment of data acceptability or usability will be provided separately, or as part of the analytical report.

Analytical Report: An analytical report will be prepared for samples analyzed under this plan. Information regarding the analytical methods or procedures employed, sample results, QA/QC results, chain-of-custody (COC) documentation, laboratory correspondence, and raw data will be provided within this deliverable.

QAPP Worksheet #14: Summary of Project Tasks (Continued)

Documentation and Records:

All sample documents will be completed legibly, in ink. Any corrections or revisions will be made by lining through the incorrect entry and by initialing the error.

Field Logbook: The field logbook is essentially a descriptive notebook detailing site activities and observations so that an accurate account of field procedures can be reconstructed in the writer's absence. Field logbook will be bound and paginated. All entries will be dated and signed by the individuals making the entries, and should include (at a minimum) the following

1. Site name and project number
2. Name(s) of personnel on-site
3. Dates and times of all entries (military time preferred)
4. Descriptions of all site activities, site entry and exit times
5. Noteworthy events and discussions
6. Weather conditions
7. Site observations
8. Sample and sample location identification and description*
9. Subcontractor information and names of on-site personnel
10. Date and time of sample collections, along with COC information
11. Record of photographs
12. Site sketches

* The description of the sample location will be noted in such a manner as to allow the reader to reproduce the location in the field at a later date.

Sample Labels: Sample labels will clearly identify the particular sample, and should include the following:

1. Site/project number.
2. Sample identification number.
3. Sample collection date and time.
4. Designation of sample (grab or composite).
5. Sample preservation.
6. Analytical parameters.
7. Name of sampler.

Sample labels will be written in indelible ink and securely affixed to the sample container. Tie-on labels can be used if properly secured.

QAPP Worksheet #14: Summary of Project Tasks (Concluded)

Custody Seals: Custody seals demonstrate that a sample container has not been tampered with or opened. The individual in possession of the sample(s) will sign and date the seal, affixing it in such a manner that the container cannot be opened without breaking the seal. The name of this individual, along with a description of the sample packaging, will be noted in the field logbook.

Assessment/Audit Tasks: No performance audit of field operations is anticipated at this time. If conducted, performance and system audit will be in accordance with the project plan.

Data Review Tasks: All data will be validated by ESAT (CLP laboratory data).

Definitive data projects: The data generated under this QA/QC Sampling Plan will be evaluated according to guidance in the Uniform Federal Policy for Implementing Environmental Quality Systems: Evaluating, Assessing and Documenting Environmental Data Collection and Use Programs Part 1: UFP-QAPP (EPA-505-B-04-900A, March 2005); Part 2B: Quality Assurance/Quality Control Compendium: Minimum QA/QC Activities (EPA-505-B-04-900B, March 2005); the CLP National Functional Guidelines for Organic and Inorganic Data Review and the Region 2 Data Validation SOPs.

Laboratory analytical results will be assessed by the data reviewer for compliance with required precision, accuracy, completeness, representativeness, and sensitivity.

QAPP Worksheet #15: Reference Limits and Evaluation Table

Matrix: Wipes
Analytical Group: Target Compound List Aroclors (PCBs)
Concentration Level: Low/Medium

Analyte	CAS Number	NJDEP Soil Cleanup Criteria (ug/wipe)			Project Quantitation Limit (mg/kg)	Analytical Method – SOM01.2 Quantitation Limits (ug)
		Residential	Non-Residential	Impact to GW		
Aroclor-1016	12674-11-2	--	--	--	N/S	1.0
Aroclor-1221	11104-28-2	--	--	--	N/S	1.0
Aroclor-1232	11141-16-5	--	--	--	N/S	1.0
Aroclor-1242	53469-21-9	--	--	--	N/S	1.0
Aroclor-1248	12672-29-6	--	--	--	N/S	1.0
Aroclor-1254	11097-69-1	--	--	--	N/S	1.0
Aroclor-1260	11096-82-5	--	--	--	N/S	1.0
Aroclor-1262	37324-23-5	--	--	--	N/S	1.0
Aroclor-1268	11100-14-4	--	--	--	N/S	1.0

QAPP Worksheet #16: Project Schedule/Timeline Table

Activities	Organization	Dates (MM/DD/YY)		Deliverable	Deliverable Due Date
		Anticipated Date(s) of Initiation	Anticipated Date of Completion		
Preparation of QAPP	RST 2 Contractor SPM	Prior to sampling date	5/20/13	Draft QAPP	5/28/13
Review of QAPP	RST 2 Contractor QAO and/or Group Leader	Prior to sampling date	5/29/13	Approved QAPP	5/29/13
Preparation of HASP	RST 2 Contractor SPM	Prior to sampling date	5/16/13	HASP	5/24/13
Procurement of Field Equipment	RST 2 Contractor SPM and/or Equipment Officer	Prior to sampling date	5/24/13	NA	NA
Laboratory Request	RST 2 Contractor SPM and/or QAO	Prior to sampling date	5/15/13	CLP Request Form	NA
Field Reconnaissance/Access	RST 2 Contractor SPM; or EPA Region II OSC	6/3/13	6/7/13	NA	NA
Collection of Field Samples	RST 2 Contractor SPM	6/3/13	6/7/13	NA	NA
Laboratory Electronic Data Received	CLP and RST 2-procured Laboratory	6/14/13	--	Electronic Preliminary Data	6/14/13
Laboratory Package Received	CLP and RST 2-procured Laboratory	6/21/13	--	--	--
Validation of Laboratory Results	CLP and RST 2-procured Laboratory	6/24/13	7/9/13	Validated Report	7/9/13
Data Evaluation/ Preparation of Final Report	RST 2 Contractor SPM	7/9/13	7/25/13	Final Report	7/25/13

QAPP Worksheet #17: Sampling Design and Rationale

RST 2 is tasked with the collection of 70 wipe samples from surfaces of the equipment and inventory within the facility. The wipe samples will determine which items contain PCB contaminates and will items tested positive for PCBs will either be decontaminated or left at the facility for disposal at a later time. Wipe samples collected will be submitted to a CLP laboratory and analyzed for TCL PCBs.

The following sampling design is based on information currently available and may be modified on site based on other acquired information:

A wipe sample is taken by applying hexane to one gauze pad. The moistened gauze pad is held with a pair of stainless-steel forceps or rubber gloves to avoid contact with the chemical; the gauze is then blotted thoroughly over a $100cm^2$ area of the sample surface (delineated by a template) to obtain the sample. Blotting versus wiping or rubbing is recommended to minimize the collection of debris and to maximize uptake of PCB's. Place pad in the sample jar provided, which should be tightly capped and labeled. Wipes sampling activities will be conducted in accordance with guidelines outlined in EPA/ERT Soil Sampling SOP #2011. Approximately 70 wipe samples will be collected using gauze saturated with hexane on designated areas. The samples will be placed in glass amber unpreserved VOA vials. The following laboratories will provide the analyses indicated:

Lab Name/Location	Sample Type	Parameters
CLP Laboratory	Wipes	TCL PCBs

Refer to Worksheet #21 for QA/QC samples, sampling methods, and SOPs.

QAPP Worksheet #18: Sampling Locations and Methods/SOP Requirements Table

Matrix	Sampling Location(s)	Units	Analytical Group(s)	Concentration Level	No. of Samples (identify field duplicates)	Sampling SOP Reference	Rationale for Sampling Location
Wipes	50	ug/sample	TCL PCBs	low/medium	70	SOP# 2011	Determine contaminants

The website for EPA-ERT SOPs is: http://www.ert.org/mainContent.asp?section=Products&subsection=List

QAPP Worksheet #19: Analytical SOP Requirements Table

Matrix	No. of Samples	Analytical Group [Lab Assignment]	Concentration Level	Analytical and Preparation Method/SOP Reference	Sample Volume	Containers (number, size, and type)	Preservation Requirements	Maximum Holding Time (preparation/ analysis)
Wipe	70	TCL PCBs	low/medium	SOMO1.2	---	40 ml amber voa vial	Cool to 4°C	To extraction: 14 days; 40 days to analysis

QAPP Worksheet #20: Field Quality Control Sample Summary Table

Matrix	Analytical Group	Concentration Level	Analytical and Preparation SOP Reference	No. of Sampling Locations	No. of Field Duplicate Pairs	No. of Extra Volume Laboratory QC (e.g., MS/MSD) Samples[1]	No. of Rinsate Blanks[1]	No. of Lot Blanks	No. of PE Samples
Wipe	TCL PCBs	low/medium	SOMO1.2	50	0	NR	NR	1	NR

FOOTNOTES:
NR – Not Required
[1] Only required if non-dedicated sampling equipment to be used and a definitive data deliverable is requested.

QAPP Worksheet #21: Project Sampling SOP References Table

Reference Number	Title, Revision Date and/or Number	Originating Organization	Equipment Type	Modified for Project Work? (Y/N)	Comments
ERT SOP # 2011	Wipe Sampling	EPA/OSWER/ERT	Disposable surgical gloves, sterile wrapped gauze , hexane, alumimun foil, iso-ocatane, medium-sized cleaned chisel	N	--
ERT SOP #2001	General Field Sampling Guidelines		General Field Sampling Guidelines	N	--

See attachment B for SOP # 2011 and 2001
Note: The website for EPA-ERT SOPs is: www.ert.org/mainContent.asp?section=Products&subsection=List

QAPP Worksheet #23: Analytical SOP References Table

Reference Number	Title, Revision Date, and/or Number	Definitive or Screening Data	Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work? (Y/N)
SOM01.2	USEPA Contract Laboratory Program Statement of Work for Multi-Media, Multi-Concentration Organic Analysis,; October 2006	Definitive	Target Compound List PCBs	GC/ECD	CLP procured Laboratory	N

GC-ECD = Gas chromatograph – electron capture detector

QAPP Worksheet #24: Analytical Instrument Calibration Table

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference[1]
GC/ECD	See SOM01.2	Initial calibration: upon award of the contract, whenever major instrument maintenance or modification is performed or if the calibration verification technical acceptance criteria have not been met. Calibration verification: Once every 12 hours	Initial calibration/ Calibration verification: resolution between two adjacent peaks must be greater than or equal to 60.0 percent, single components must be greater than or equal to 90.0 percent resolved, RTs within the RT window, %D must be greater than or equal to -25 percent and less than or equal to 25 percent, %RSD must be less than or equal to 20.0 percent.	Initial calibration: inspect the system (e.g., change the column, bake out the detector, clean the injection port) , correct problem, re-calibrate. Calibration verification: inspect system, recalibrate the instrument, and reanalyze samples.	CLP procured Laboratory GC/ECD Technician	SOM01.2

[1] Specify the appropriate letter or number form the Analytical SOP References table (Worksheet #23)

QAPP Worksheet #25: Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table

Instrument/ Equipment	Maintenance Activity	Testing/Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference[1]
GC/ECD	See SOM01.2 as per instrument manufacturer's recommendations	See SOM01.2 as per instrument manufacturer's recommendations	See SOM01.2 as per instrument manufacturer's recommendations	Acceptable re-calibration; see SOM01.2	Inspect the system, correct problem, re-calibrate and/or reanalyze samples.	CLP procured Laboratory GC/ECD Technician	SOM01.2

[1] Specify the appropriate letter or number form the Analytical SOP References table (Worksheet #23)

QAPP Worksheet #26: Sample Handling System

SAMPLE COLLECTION, PACKAGING, AND SHIPMENT
Sample Collection (Personnel/Organization): RST 2 Site Project Manager, Weston Solutions, Inc., Region II
Sample Packaging (Personnel/Organization): RST 2 Site Project Manager and sampling team members, Weston Solutions, Inc., Region II
Coordination of Shipment (Personnel/Organization): RST 2 Site Project Manager, sampling team members, Weston Solutions, Inc., Region II
Type of Shipment/Carrier: Federal Express
SAMPLE RECEIPT AND ANALYSIS
Sample Receipt (Personnel/Organization): Sample Custodian and EPA CLP RAS Laboratory
Sample Custody and Storage (Personnel/Organization): Sample Custodian and EPA CLP RAS Laboratory
Sample Preparation (Personnel/Organization): Sample Technicians and EPA CLP RAS Laboratory
Sample Determinative Analysis (Personnel/Organization): Sample Technicians and EPA CLP RAS Laboratory
SAMPLE ARCHIVING
Field Sample Storage (No. of days from sample collection): Samples to be shipped to CLP procured Laboratory same day of collection.
Sample Extract/Digestate Storage (No. of days from extraction/digestion): As per analytical methodology; see Worksheet #19
SAMPLE DISPOSAL
Personnel/Organization: Sample Technicians and EPA CLP RAS Laboratory
Number of Days from Analysis: Until analysis and QA/QC checks are completed; as per analytical methodology; see Worksheet #19.

QAPP Worksheet #27: Sample Custody Requirements

Sample Identification Procedures Each sample collected by Region II RST 2 will be identified by a sample location number, the matrix of the sample collected, and the sample number. The matrix identifier for all matrices will be determined on-site after consulting with the EPA OSC. The last number will represent the sample number collected from each location. Duplicate samples will be identified in the same manner but will be the next sequential sample number (in most cases 002).

Location of the sample collected will be recorded in the project database and site logbook. Each sample will also be labeled with a CLP assigned number (CLP samples only). Depending on the type of sample, additional information such as sampling round, date, etc. will be added.

Field Sample Custody Procedures (sample collection, packaging, shipment, and delivery to laboratory): Each sample will be individually identified and labeled after collection, then sealed with custody seals and enclosed in a plastic cooler. The sample information will be recorded on chain-of custody (COC) forms, and the samples shipped to the CLP and RST 2-procured laboratory daily. Chain-of-custody records will be prepared in the Scribe database to accompany samples from the time of collection and throughout the shipping process. Each individual in possession of the samples must sign and date the sample COC Record. The chain-of-custody record will be considered completed upon receipt at the laboratory. A traffic report and chain-of-custody record will be maintained from the time the sample is taken to its final deposition. Every transfer of custody must be noted and signed for, and a copy of this record kept by each individual who has signed. When samples are not under direct control of the individual responsible for them, they must be stored in a locked container sealed with a custody seal. Specific information regarding custody of the samples projected to be collected on the weekend will be noted in the field logbook. The chain-of-custody record should include (at minimum) the following: 1) Sample identification number; 2) Sample information; 3) Sample location; 4) Sample date; 5) Sample Time; 6) Sample Type Matrix; 7) Sample Container Type; 8) Sample Analysis Requested; 9) Name(s) and signature(s) of sampler(s); and 10) Signature(s) of any individual(s) with custody of samples.

A separate chain-of-custody form must accompany each cooler for each daily shipment. The chain-of-custody form must address all samples in that cooler, but not address samples in any other cooler. This practice maintains the chain-of-custody for all samples in case of mis-shipment.

QAPP Worksheet #27: Sample Custody Requirements (Concluded)

Laboratory Sample Custody Procedures (receipt of samples, archiving, and disposal): A sample custodian at the laboratory will accept custody of the shipped samples, and check them for discrepancies, proper preservation, integrity, etc. If noted, issues will be forwarded to the laboratory manager for corrective action. The sample custodian will relinquish custody to the appropriate department for analysis. At this time, no samples will be archived at the laboratory. Disposal of the samples will occur only after analyses and QA/QC checks are completed.

QAPP Worksheet #28: QC Samples Table

(UFP-QAPP Manual Section 3.4)

Complete a separate worksheet for each sampling technique, analytical method/SOP, matrix, analytical group, and concentration level. If method/SOP QC acceptance limit exceed the measurement performance criteria, the data obtained may be unusable for making project decisions.

Matrix	Wipe
Analytical Group	Target Compound List PCBs
Concentration Level	Low/Medium (mg/kg)
Sampling SOP(s)	EPA ERT SOP No. 2008 and 2011
Analytical Method/SOP Reference	SOM01.2
Sampler's Name	Peter Lisichenko
Field Sampling Organization	Weston Solutions, Inc.
Analytical Organization	EPA CLP RAS Laboratory
No. of Sample Locations	70

Lab QC Sample:	**Frequency/ Number**	**Method/SOP QC Acceptance Limits**		**Corrective Action**	**Person(s) Responsible for Corrective Action**	**Data Quality Indicator (DQI)**	**Measurement Performance Criteria**	
Method Blank	1 per ≤ 20 samples or whenever samples extracted	No analyte > CRQL		Suspend analysis unit source recertified	EPA CLP RAS Laboratory GC/ECD Technician	Accuracy	No analyte > CRQL	
Laboratory Control Sample	all samples	Aroclor-1016	50-150 %R	EPA CLP RAS Laboratory GC/ECD Technician	EPA CLP RAS Laboratory GC/ECD Technician	Accuracy	Aroclor-1016	50-150 %R
		Aroclor-1260	50-150 %R				Aroclor-1260	50-150 %R
Surrogate	all samples		30-150%R	EPA CLP RAS Laboratory GC/ECD Technician	EPA CLP RAS Laboratory GC/ECD Technician	Accuracy		30-150%R

Wipes field duplicate & MS/MSD samples will **not** be collected.

QAPP Worksheet #29: Project Documents and Records Table

Sample Collection Documents and Records	Analysis Documents and Records	Data Assessment Documents and Records	Other
• Site and field logbooks • COC forms • Field Data Sheets • Photo-document • CLP Sample Number • GIS Map for Sampling Locations	• Sample receipt logs • Internal and external COC forms • Equipment calibration logs • Sample preparation worksheets/logs • Sample analysis worksheets/run logs • Telephone/email logs • Corrective action documentation	• Data validation reports • Field inspection checklist(s) • Review forms for electronic entry of data into database • Corrective action documentation	CLP Request Form

QAPP Worksheet #30: Analytical Services Table

Matrix	Analytical Group	Concentration Level	Analytical SOP	Data Package Turnaround Time	Laboratory/Organization (Name and Address, Contact Person and Telephone Number)	Backup Laboratory/Organization (Name and Address, Contact Person and Telephone Number)
Wipe	TCL PCBs	low/medium	SOMO 1.2	5 days preliminary and 2 weeks written	CLP Laboratory	NA

NA – Not Applicable

QAPP Worksheet #31: Planned Project Assessments Table

Assessment Type	Frequency	Internal or External	Organization Performing Assessment	Person(s) Responsible for Performing Assessment (Title and Organizational Affiliation)	Person(s) Responsible for Responding to Assessment Findings (Title and Organizational Affiliation)	Person(s) Responsible for Identifying and Implementing Corrective Actions (Title and Organizational Affiliation)	Person(s) Responsible for Monitoring Effectiveness of Corrective Actions (Title and Organizational Affiliation)
Laboratory Technical Systems	Every Year	External	Regulatory Agency	Regulatory Agency	CLP (NELAC) and RST 2-procured Laboratories	CLP (NELAC) and RST 2-procured Laboratories	EPA or other Regulatory Agency
Performance Audit*	--	External	Regulatory Agency	Regulatory Agency	CLP (NELAC) and RST 2-procured Laboratories	CLP (NELAC) and RST 2-procured Laboratories	EPA or other Regulatory Agency
Performance Evaluation Samples	NA	External	Regulatory Agency	Regulatory Agency	CLP (NELAC) and RST 2-procured Laboratories	CLP (NELAC) and RST 2-procured Laboratories	EPA or other Regulatory Agency
NELAC	Every two years	External	NELAC	Florida DOH	Lab QA Officer	Lab Personnel	Florida DOH
On-Site Field Inspection	Project Specific	Internal	Weston Solutions, Inc.	Regulatory Agency	Sampling and Monitoring Plan Coordinator	Safety Officer	EPA or other Regulatory Agency
Data Assessment	Project Specific	External	Regulatory Agency	Regulatory Agency	EPA OSC, RST 2 SPM	Laboratory Personnel	EPA or other Regulatory Agency

QAPP Worksheet #32: Assessment Findings and Corrective Action Responses

Assessment Type	Nature of Deficiencies Documentation	Individual(s) Notified of Findings (Name, Title, Organization)	Timeframe of Notification	Nature of Corrective Action Response Documentation	Individual(s) Receiving Corrective Action Response (Name, Title, Org.)	Timeframe for Response
Project Readiness Review	Checklist or logbook entry summary	Site Project Manager, Weston Solutions, Inc.	Immediately to within 24 hours of review	Checklist or logbook entry	Site Project Manager, Weston Solutions, Inc.	Immediately to within 24 hours of review
Field Observations/ Deviations from Work Plan	Logbook	Site Project Manager, Weston Solutions, Inc. and EPA RPM	Immediately to within 24 hours of deviation	Logbook	Site Project Manager, Weston Solutions, Inc. and EPA RPM	Immediately to within 24 hours of deviation
Laboratory Technical Systems/ Performance Audits	Written Report	EPA CLP and RST 2-procured Laboratories	30 days	Letter	EPA CLP and RST 2-procured Laboratories	14 days
On-Site Field Inspection	Written Report	Site Project Manager, Weston Solutions, Inc.	7 calendar days after completion of the audit	Letter/Internal Memorandum	Site Project Manager, Weston Solutions, Inc. and/or EPA RPM	To be identified in the cover letter of the report
Performance Evaluation Samples	Electronic Report	EPA CLP and RST 2-procured Laboratories	30 days	Letter or Written Report	EPA CLP and RST 2-procured Laboratories	14 days
Peer Review	Deliverables	SPM, Weston Solutions, Inc.	Prior to deliverable due date	Comments directly on deliverable	SPM, Weston Solutions, Inc.	Prior to deliverable due date

QAPP Worksheet #33: QA Management Reports Table

Type of Report	Frequency (daily, weekly, monthly, quarterly, annually, etc.)	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation (Title and Organizational Affiliation)	Report Recipient(s) (Title and Organizational Affiliation)
EPA CLP RAS Laboratory Data (unvalidated)	As performed	Unknown	EPA CLP and RST 2-procured Laboratories	Dave Rosoff - OSC, RSCCs, EPA Region 2 and Site Project Manager, Weston Solutions, Inc.
EPA CLP RAS and non-RAS Laboratories Data (validated)	As performed	Up to 60 days after receipt of unvalidated data	EPA Region II	Site Project Manager, Weston Solutions, Inc.
Laboratory Technical Systems/ Performance Audits	As performed	Unknown	EPA or other Regulatory Agency	EPA CLP procured Laboratories
Performance Evaluation Samples	As performed	Unknown	EPA or other Regulatory Agency	EPA CLP procured Laboratories
On-Site Field Inspection	As performed	7 calendar days after completion of the inspection	Site Project Manager, Weston Solutions, Inc.	Site Project Manager, Weston Solutions, Inc.
Field Change Request	As required per field change	Three days after identification of need for field change	Site Project Manager, Weston Solutions, Inc.	EPA OSC
Final Report	As performed	2 weeks after receipt of EPA approval of data package	Site Project Manager, Weston Solutions, Inc.	EPA OSC

QAPP Worksheet #34: Verification (Step I) Process Table

Verification Input	Description	Internal/ External	[1]Responsible for Verification (Name, Organization)
Site/field logbooks	Field notes will be prepared daily by the EPA Sample Leader and will be complete, appropriate, legible and pertinent. Upon completion of field work, logbooks will be placed in the project files.	I	Site Project Manager, Weston Solutions, Inc.
Chains of custody	COC forms will be reviewed against the samples packed in the specific cooler prior to shipment. The reviewer will initial the form. An original COC will be sent with the samples to the laboratory, while copies are retained for (1) the Sampling Trip Report and (2) the project files.	I	Site Project Manager, Weston Solutions, Inc.
Sampling Trip Reports	STRs will be prepared for each week of field sampling [for which samples are sent to an EPA CLP RAS laboratory.] Information in the STR will be reviewed against the COC forms, and potential discrepancies will be discussed with field personnel to verify locations, dates, etc.	I	Site Project Manager, Weston Solutions, Inc.
Laboratory Preliminary Data	Preliminary data – limited review for either contract compliance or technical compliance.	E	EPA CLP Laboratory
Laboratory analytical data package	Data packages will be reviewed/verified internally by the laboratory performing the work for completeness and technical accuracy prior to submittal.	E	EPA CLP Laboratory
Laboratory analytical data package	Data packages will be reviewed as to content and sample information upon receipt by EPA.	I/E	ESAT Data Validation Personnel
Final Sample Report	The project data results will be compiled in a sample report for the project. Entries will be reviewed/verified against hardcopy information.	I	Site Project Manager, Weston Solutions, Inc.

QAPP Worksheet #35: Validation (Steps IIa and IIb) Process Table

Step IIa/IIb	Validation Input	Description	Responsible for Validation (Name, Organization)
IIa	SOPs	Ensure that the sampling methods/procedures outlined in QAPP were followed, and that any deviations were noted/approved.	Site Project Manager, Weston Solutions, Inc.
IIb	SOPs	Determine potential impacts from noted/approved deviations, in regard to PQOs.	Site Project Manager, Weston Solutions, Inc.
IIa	Chains of custody	Examine COC forms against QAPP and laboratory contract requirements (e.g., analytical methods, sample identification, etc.).	ESAT Data Validation Personnel, EPA Region
IIa	Laboratory data package	Examine packages against QAPP and laboratory contract requirements, and against COC forms (e.g., holding times, sample handling, analytical methods, sample identification, data qualifiers, QC samples, etc.).	ESAT Data Validation Personnel, EPA Region 2 and Site Project Manager
IIb	Laboratory data package	Determine potential impacts from noted/approved deviations, in regard to PQOs. Examples include PQLs and QC sample limits (precision/accuracy).	ESAT Data Validation Personnel, EPA Region 2 and Site Project Manager
IIb	Field duplicates*	Compare results of field duplicate (or replicate) analyses with RPD criteria	ESAT Data Validation Personnel, EPA Region 2 and Site Project Manager

* Site-specific QAPP may contain additional data validation inputs as required by the project objectives.

QAPP Worksheet #36: Validation (Steps IIa and IIb) Summary Table

Step IIa/IIb	Matrix	Analytical Group	Concentration Level	Validation Criteria	Data Validator (title and organizational affiliation)
IIa / IIb	Wipe	TCL PCBs	Low/Medium	Data Validation SOP for Organic Analysis of Low/Medium Concentration of Aroclors under SOMO1.2; SOP HW-37, Rev. 1	ESAT Data Validation Personnel, EPA Region 2

QAPP Worksheet #37: Usability Assessment

Summarize the usability assessment process and all procedures, including interim steps and any statistics, equations, and computer algorithms that will be used: Screening data with definitive confirmation analytical objective has been requested. Data, whether generated in the field or by the laboratory, are tabulated and reviewed and will support an intermediate or preliminary decision and to identify/confirm the presence of PCBs on site.

Where applicable, the following documents will be followed to evaluate data for fitness in decision making: EPA QA/G-4, *Guidance on Systematic Planning using the Data Quality Objectives Process*, EPA/240/B-06/001, February 2006, and EPA QA/G-9R, *Guidance for Data Quality Assessment*, A reviewer's Guide EPA/240/B-06/002, February 2006.

Describe the evaluative procedures used to assess overall measurement error associated with the project:
As delineated in the ***Uniform Federal Policy for Implementing Environmental Quality Systems: Evaluating, Assessing and Documenting Environmental Data Collection and Use Programs Part 1: UFP-QAPP (EPA-505-B-04-900A, March 2005); Part 2A: UFP-QAPP Workbook (EPA-505-B-04-900C, March 2005); Part 2B: Quality Assurance/Quality Control Compendium: Non-Time Critical QA/QC Activities (EPA-505-B-04-900B, March 2005);*** "Graded Approach" will be implemented for data collection activities that are either exploratory or where specific decisions cannot be identified, since this guidance indicates that the formal DQO process is not necessary.

The data will be evaluated to determine whether they satisfy the PQO for the project. The validation process determines if the data satisfy the QA criteria. After the data pass the data validation process, comparison results with the PQO is done.

QAPP Worksheet #37: Usability Assessment (Concluded)

The analytical data from this investigation will be used to assist the EPA and Frameware in determining the levels of PCBs on surfaces of equipment and inventory within the facility. Items tested positive for PCBs will be decontaminated and moved to a new facility or remain within the contaminated Site and disposed of at a later time.

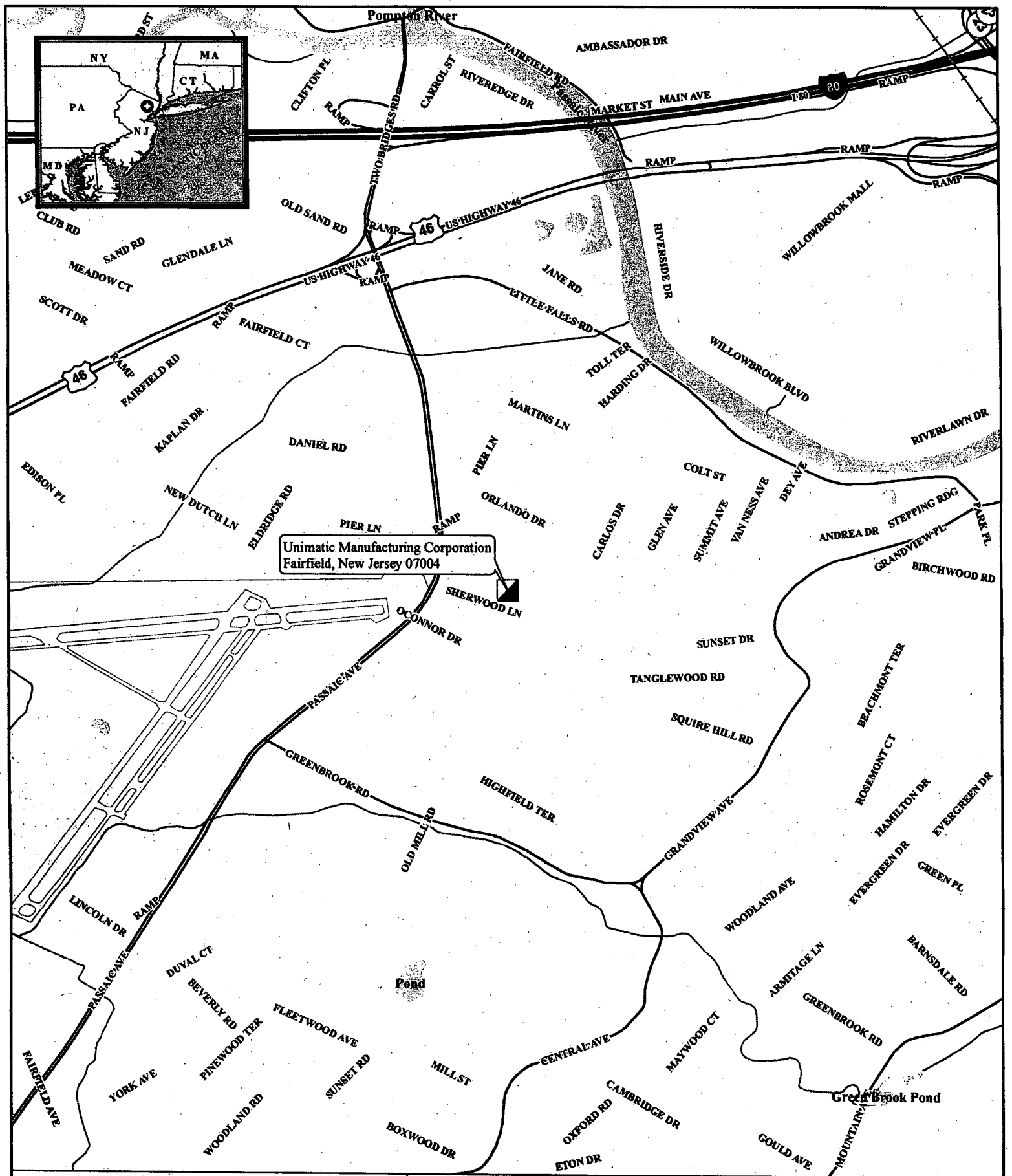
Identify the personnel responsible for performing the usability assessment: Site Project Manager, Data Validation Personnel, and EPA, Region II OSC

Describe the documentation that will be generated during usability assessment and how usability assessment results will be presented so that they identify trends, relationships (correlations), and anomalies:

A copy of the most current approved QAPP, including any graphs, maps and text reports developed will be provided to all personnel identified on the distribution list.

ATTACHMENT A

Site Location Map



Legend

Site Location

0 0.05 0.1 0.2 0.3 0.4 Miles

N

Weston Solutions, Inc.
Northeast Division

In Association With
H & S Environmental, Inc.,
Scientific and Environmental Associates, Inc.
and Avatar Environmental, LLC.

Figure A1
Site Location Map

Unimatic Manufacturing Corporation Site
Fairfield, New Jersey

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL SUPPORT TEAM 2
CONTRACT # EP-W-06-072

GIS ANALYST:	T. BENTON
EPA OSC:	D. ROSOFF
RST SPM:	P. LISICHENKO
FILENAME:	SITEMAP.MXD

DATE MODIFIED: 9/5/2012

ATTACHMENT B

Sample Inventory Plan

Loft Storage Area

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Loft Storage Area

Item Type: Machine

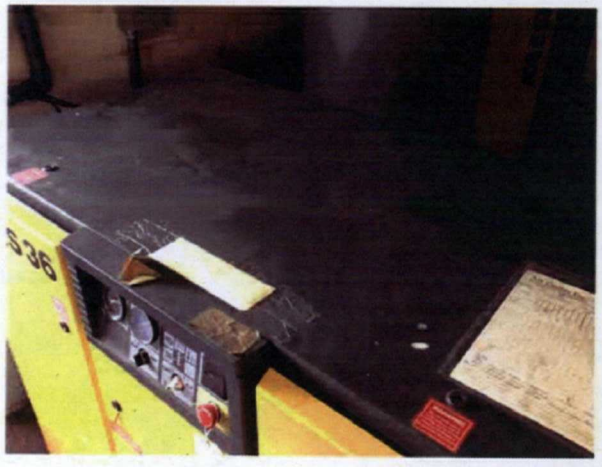
Location Number: 1

Sample Number at Location: 1

Sample ID: P001-LSA-001-ME-01

Description of Sample Location:

Top surface



Sample Number at Location: 2

Sample ID: P001-LSA-001-ME-02

Description of Sample Location:

Metal cross brace adjacent to air intake

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Loft Storage Area

Item Type: Rack

Location Number: 14

Sample Number at Location: 1

Sample ID: P001-LSA-002-RK-01

Description of Sample Location:

Top of cross brace

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Loft Storage Area

Item Type: Inventory

Location Number: 14

Sample Number at Location: 1

Sample ID: P001-LSA-002-IY-01

Description of Sample Location:

Top of random box on rack

Machine Tool Room

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Machine Tool Room

Item Type: Machine

Location Number: 5

Sample Number at Location: 1

Sample ID: P001-MTR-001-ME-01

Description of Sample Location:

Base

Sample Number at Location: 2

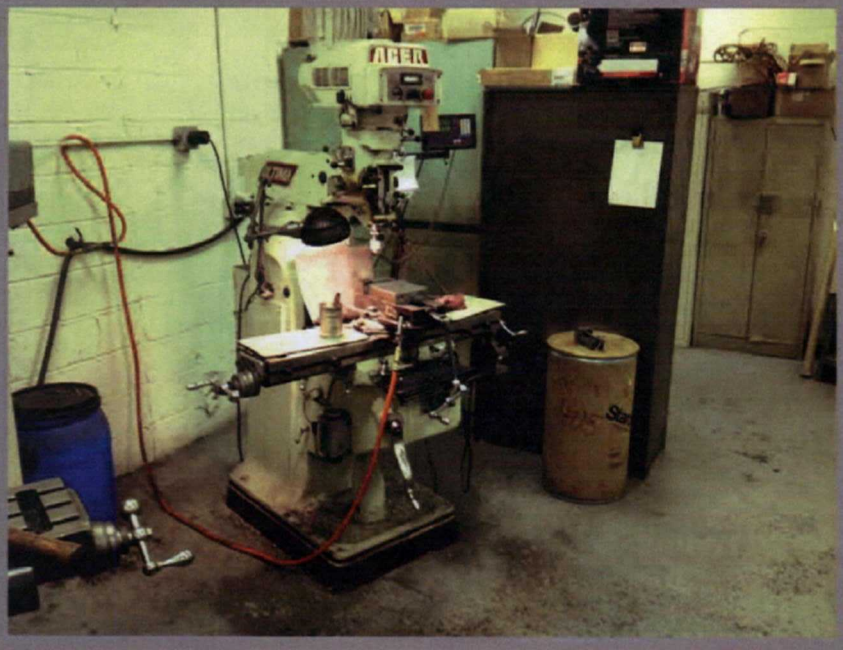
Sample ID: P001-MTR-001-ME-02

Description of Sample Location:

Top surface

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory



Room: Machine Tool Room

Item Type: Machine

Location Number: 10

Sample Number at Location: 1

Sample ID: P001-MTR-002-ME-01

Description of Sample Location:

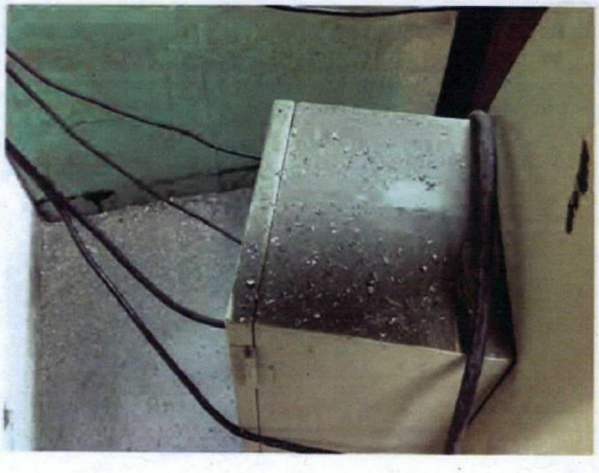
Base

Sample Number at Location: 2

Sample ID: P001-MTR-002-ME-02

Description of Sample Location:

Top power supply at the rear of the machine



Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Machine Tool Room

Item Type: Rack

Location Number: 30

Sample Number at Location: 1

Sample ID: P001-MTR-003-RK-01

Description of Sample Location:

Base

Sample Number at Location: 2

Sample ID: P001-MTR-003-RK-02

Description of Sample Location:

Metal cross member

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Sample Number at Location: 3

Sample ID: P001-MTR-003-RK-03

Description of Sample Location:

Wood shelf

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Machine Tool Room

Item Type: Inventory

Location Number: 23

Sample Number at Location: 1

Sample ID: P001-MTR-004-IY-01

Description of Sample Location:

Top surface of metal wedge

Pressing Room

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Pressing Room

Item Type: Inventory

Location Number: 3

Sample Number at Location: 1

Sample ID: P001-PRR-001-IY-01

Description of Sample Location:

Die from top shelf

Sample Number at Location: 2

Sample ID: P001-PRR-001-IY-02

Description of Sample Location:

Die from third shelf

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Sample Number at Location: 3

Sample ID: P001-PRR-001-IY-03

Description of Sample Location:

Die from bottom shelf

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Pressing Room

Item Type: Machine

Location Number: 13

Sample Number at Location: 1

Sample ID: P001-PRR-002-ME-01

Description of Sample Location:

Base

Sample Number at Location: 2

Sample ID: P001-PRR-002-ME-02

Description of Sample Location:

Top of machine

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Sample Number at Location: 3

Sample ID: P001-PRR-002-ME-03

Description of Sample Location:

Base of spool tray

Receiving Room

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Receiving Room

Item Type: Machine

Location Number: 4

Sample Number at Location: 1

Sample ID: P001-RCR-001-ME-01

Description of Sample Location:

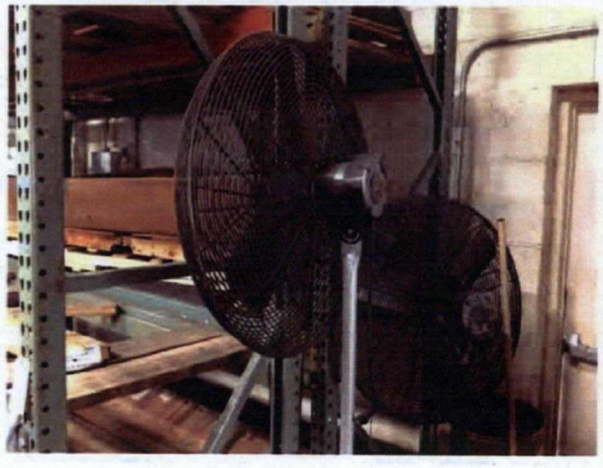
Underside of base

Sample Number at Location: 2

Sample ID: P001-RCR-001-ME-02

Description of Sample Location:

Protective screen



Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Receiving Room

Item Type: Rack

Location Number: 5

Sample Number at Location: 1

Sample ID: P001-RCR-002-RK-01

Description of Sample Location:

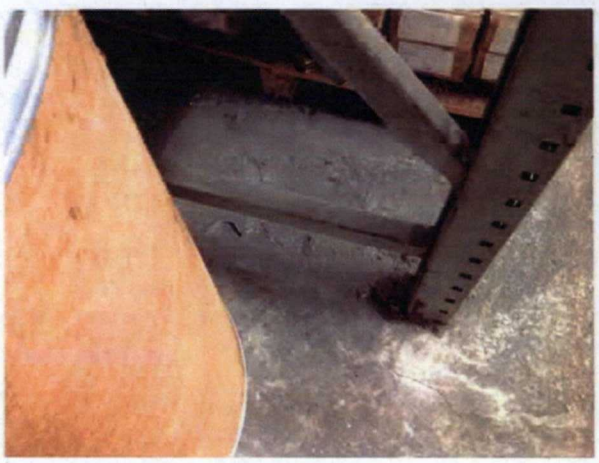
Base

Sample Number at Location: 2

Sample ID: P001-RCR-002-RK-02

Description of Sample Location:

Cross brace



Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Sample Number at Location: 3

Sample ID: P001-RCR-002-RK-03

Description of Sample Location:

Cross member

Sample Number at Location: 4

Sample ID: P001-RCR-002-RK-04

Description of Sample Location:

Cross member 12' above ground

Screw Machine Room

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Screw Machine Room

Item Type: Machine

Location Number: 1

Sample Number at Location: 1

Sample ID: P001-SMR-001-ME-01

Description of Sample Location:

Base

Sample Number at Location: 2

Sample ID: P001-SMR-001-ME-02

Description of Sample Location:

Cross brace

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Sample Number at Location: 3

Sample ID: P001-SMR-001-ME-03

Description of Sample Location:

Top of control pannel

Shipping Room

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Shipping Room

Item Type: Cart/Dolly

Location Number: 16

Sample Number at Location: 1

Sample ID: P001-SGR-001-CD-01

Description of Sample Location:

Wheel - 7" dia, 2" wide

Sample Number at Location: 2

Sample ID: P001-SGR-001-CD-02

Description of Sample Location:

Top surface

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Shipping Room

Item Type: Machine

Location Number: 3

Sample Number at Location: 1

Sample ID: P001-SGR-002-ME-01

Description of Sample Location:

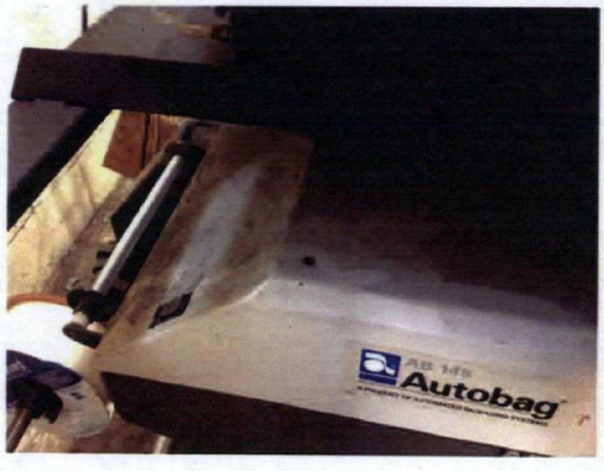
Base

Sample Number at Location: 2

Sample ID: P001-SGR-002-ME-02

Description of Sample Location:

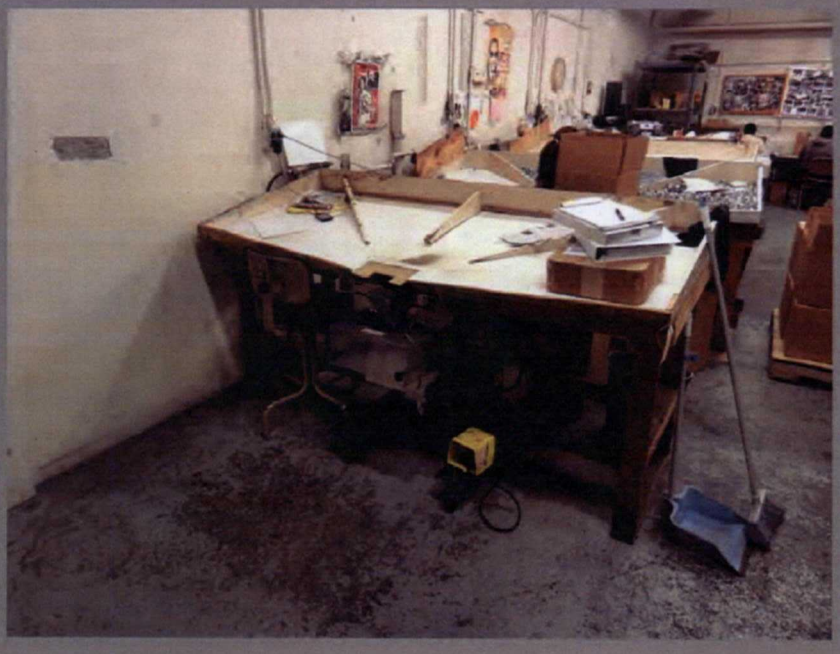
Top of metal housing



Sort / Packing Room

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory



Room: Sort / Packing Room

Item Type: Workspace

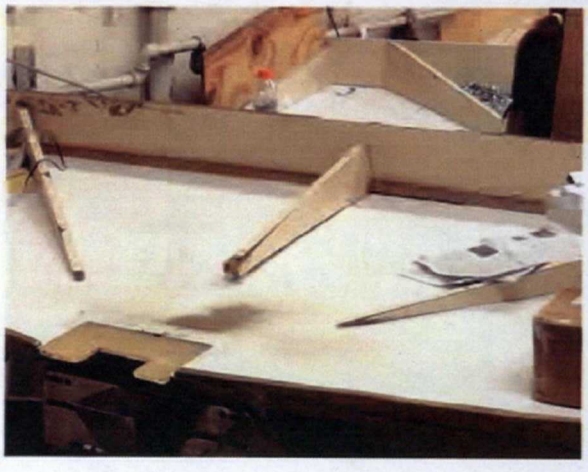
Location Number: 6

Sample Number at Location: 1

Sample ID: P001-SPR-001-WS-01

Description of Sample Location:

Top surface of work space



Sample Number at Location: 2

Sample ID: P001-SPR-001-WS-02

Description of Sample Location:

Bottom of wood base

Sample Number at Location: 3

Sample ID: P001-SPR-001-WS-03

Description of Sample Location:

Top of machine under bench

Sample Number at Location: 4

Sample ID: P001-SPR-001-WS-04

Description of Sample Location:

Bottom of foot peddle

Sample Number at Location: 5

Sample ID: P001-SPR-001-WS-05

Description of Sample Location:

Bottom of wheel - 3 1/4 dia, 1 1/4" wide

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Sort / Packing Room

Item Type: Rack

Location Number: 2

Sample Number at Location: 1

Sample ID: P001-SPR-002-RK-01

Description of Sample Location:

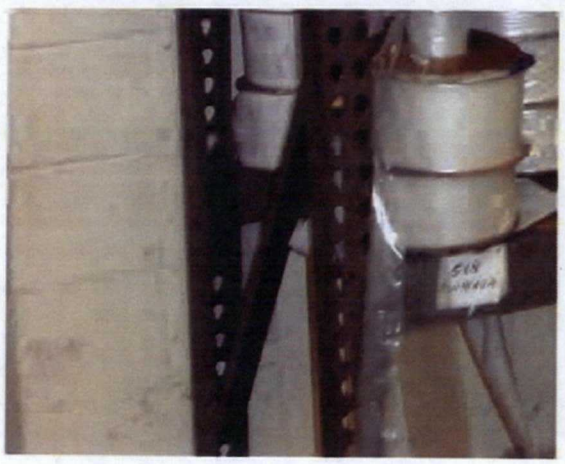
Base of leg

Sample Number at Location: 2

Sample ID: P001-SPR-002-RK-02

Description of Sample Location:

Cross brace



Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Sample Number at Location: 3

Sample ID: P001-SPR-002-RK-03

Description of Sample Location:

Surface of wood shelf

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Sort / Packing Room

Item Type: Inventory

Location Number: 2

Sample Number at Location: 1

Sample ID: P001-SPR-002-IY-01

Description of Sample Location:

Top surface of random item on shelf

Warehouse / Inventory Area

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Warehouse / Inventory Area

Item Type: Rack

Location Number: 2

Sample Number at Location: 1

Sample ID: P001-WIA-001-RK-01

Description of Sample Location:

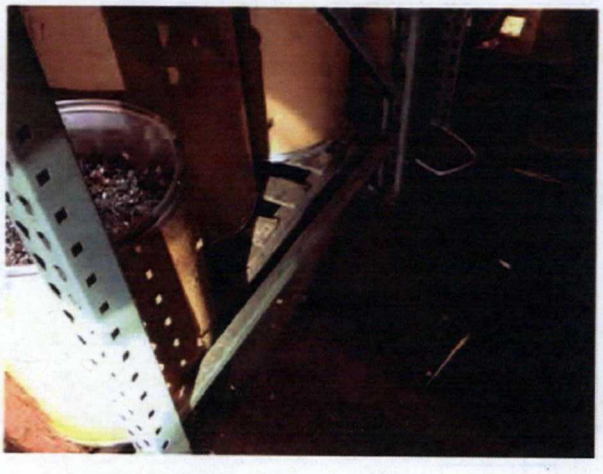
Base

Sample Number at Location: 2

Sample ID: P001-WIA-001-RK-02

Description of Sample Location:

Cross brace



Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Sample Number at Location: 3

Sample ID: P001-WIA-001-RK-03

Description of Sample Location:

Cross member

Sample Number at Location: 4

Sample ID: P001-WIA-001-RK-04

Description of Sample Location:

Cross member 12' above the ground

Unimatic Manufacturing, Inc. Site

Phase III Removal Assessment: Equipment Inventory

Room: Warehouse / Inventory Area

Item Type: Rack

Location Number: 3

Sample Number at Location: 1

Sample ID: P001-WIA-002-RK-01

Description of Sample Location:

Base

Sample Number at Location: 2

Sample ID: P001-WIA-002-RK-02

Description of Sample Location:

Cross brace

Sample Number at Location: 3

Sample ID: P001-WIA-002-RK-03

Description of Sample Location:

Cross member

Sample Number at Location: 4

Sample ID: P001-WIA-002-RK-04

Description of Sample Location:

Cross member from 12' above the ground

ATTACHMENT C

Sampling SOPs

ERT SOP # 2001 – General Field Sampling
ERT SOP # 2011 – Chip, Wipe and Sweep Sampling

GENERAL FIELD SAMPLING GUIDELINES

SOP#: 2001
DATE: 08/11/94
REV. #: 0.0

1.0 SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure (SOP) is to provide general field sampling guidelines that will assist REAC personnel in choosing sampling strategies, location, and frequency for proper assessment of site characteristics. This SOP is applicable to all field activities that involve sampling.

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, dependent on site conditions, equipment limitations or limitations imposed by the procedure. In all instances, the ultimate procedures employed should be documented and associated with the final report.

Mention of trade names or commercial products does not constitute U.S. EPA endorsement or recommendation for use.

2.0 METHOD SUMMARY

Sampling is the selection of a representative portion of a larger population, universe, or body. Through examination of a sample, the characteristics of the larger body from which the sample was drawn can be inferred. In this manner, sampling can be a valuable tool for determining the presence, type, and extent of contamination by hazardous substances in the environment.

The primary objective of all sampling activities is to characterize a hazardous waste site accurately so that its impact on human health and the environment can be properly evaluated. It is only through sampling and analysis that site hazards can be measured and the job of cleanup and restoration can be accomplished effectively with minimal risk. The sampling itself must be conducted so that every sample collected retains its original physical form and chemical composition. In this way, sample integrity is insured, quality assurance standards are maintained, and the sample can accurately represent the larger body of material under investigation.

The extent to which valid inferences can be drawn from a sample depends on the degree to which the sampling effort conforms to the project's objectives. For example, as few as one sample may produce adequate, technically valid data to address the project's objectives. Meeting the project's objectives requires thorough planning of sampling activities, and implementation of the most appropriate sampling and analytical procedures. These issues will be discussed in this procedure.

3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

The amount of sample to be collected, and the proper sample container type (i.e., glass, plastic), chemical preservation, and storage requirements are dependent on the matrix being sampled and the parameter(s) of interest. Sample preservation, containers, handling, and storage for air and waste samples are discussed in the specific SOPs for air and waste sampling techniques.

4.0 INTERFERENCES AND POTENTIAL PROBLEMS

The nature of the object or materials being sampled may be a potential problem to the sampler. If a material is homogeneous, it will generally have a uniform composition throughout. In this case, any sample increment can be considered representative of the material. On the other hand, heterogeneous samples present problems to the sampler because of changes in the material over distance, both laterally and vertically.

Samples of hazardous materials may pose a safety threat to both field and laboratory personnel. Proper health and safety precautions should be implemented when handling this type of sample.

Environmental conditions, weather conditions, or non-target chemicals may cause problems and/or interferences when performing sampling activities or when sampling for a specific parameter. Refer to the specific SOPs for sampling techniques.

5.0 EQUIPMENT/APPARATUS

The equipment/apparatus required to collect samples must be determined on a site specific basis. Due to the wide variety of sampling equipment available, refer to the specific SOPs for sampling techniques which include lists of the equipment/apparatus required for sampling.

6.0 REAGENTS

Reagents may be utilized for preservation of samples and for decontamination of sampling equipment. The preservatives required are specified by the analysis to be performed. Decontamination solutions are specified in ERT SOP #2006, Sampling Equipment Decontamination.

7.0 PROCEDURE

7.1 Types of Samples

In relation to the media to be sampled, two basic types of samples can be considered: the environmental sample and the hazardous sample.

Environmental samples are those collected from streams, ponds, lakes, wells, and are off-site samples that are not expected to be contaminated with hazardous materials. They usually do not require the special handling procedures typically used for concentrated wastes. However, in certain instances, environmental samples can contain elevated concentrations of pollutants and in such cases would have to be handled as hazardous samples.

Hazardous or concentrated samples are those collected from drums, tanks, lagoons, pits, waste piles, fresh spills, or areas previously identified as contaminated, and require special handling procedures because of their potential toxicity or hazard. These samples can be further subdivided based on their degree of hazard; however, care should be taken when handling and shipping any wastes believed to be concentrated regardless of the degree.

The importance of making the distinction between environmental and hazardous samples is two-fold:

(1) Personnel safety requirements: Any sample thought to contain enough hazardous materials to pose a safety threat should be designated as hazardous and handled in a manner which ensures the safety of both field and laboratory personnel.

(2) Transportation requirements: Hazardous samples must be packaged, labeled, and shipped according to the International Air Transport Association (IATA) Dangerous Goods Regulations or Department of Transportation (DOT) regulations and U.S. EPA guidelines.

7.2 Sample Collection Techniques

In general, two basic types of sample collection techniques are recognized, both of which can be used for either environmental or hazardous samples.

Grab Samples

A grab sample is defined as a discrete aliquot representative of a specific location at a given point in time. The sample is collected all at once at one particular point in the sample medium. The representativeness of such samples is defined by the nature of the materials being sampled. In general, as sources vary over time and distance, the representativeness of grab samples will decrease.

Composite Samples

Composites are nondiscrete samples composed of more than one specific aliquot collected at various sampling locations and/or different points in time. Analysis of this type of sample produces an average value and can in certain instances be used as an alternative to analyzing a number of individual grab samples and calculating an average value. It should be noted, however, that compositing can mask problems by diluting isolated concentrations of some hazardous compounds below detection limits.

Compositing is often used for environmental samples and may be used for hazardous samples under certain conditions. For example, compositing of hazardous waste is often performed after compatibility tests have

been completed to determine an average value over a number of different locations (group of drums). This procedure generates data that can be useful by providing an average concentration within a number of units, can serve to keep analytical costs down, and can provide information useful to transporters and waste disposal operations.

For sampling situations involving hazardous wastes, grab sampling techniques are generally preferred because grab sampling minimizes the amount of time sampling personnel must be in contact with the wastes, reduces risks associated with compositing unknowns, and eliminates chemical changes that might occur due to compositing.

7.3 Types of Sampling Strategies

The number of samples that should be collected and analyzed depends on the objective of the investigation. There are three basic sampling strategies: random, systematic, and judgmental sampling.

Random sampling involves collection of samples in a nonsystematic fashion from the entire site or a specific portion of a site. Systematic sampling involves collection of samples based on a grid or a pattern which has been previously established. When judgmental sampling is performed, samples are collected only from the portion(s) of the site most likely to be contaminated. Often, a combination of these strategies is the best approach depending on the type of the suspected/known contamination, the uniformity and size of the site, the level/type of information desired, etc.

7.4 QA Work Plans (QAWP)

A QAWP is required when it becomes evident that a field investigation is necessary. It should be initiated in conjunction with, or immediately following, notification of the field investigation. This plan should be clear and concise and should detail the following basic components, with regard to sampling activities:

- Objective and purpose of the investigation.
- Basis upon which data will be evaluated.
- Information known about the site including location, type and size of the facility, and length of operations/abandonment.
- Type and volume of contaminated material, contaminants of concern (including concentration), and basis of the information/data.
- Technical approach including media/matrix to be sampled, sampling equipment to be used, sample equipment decontamination (if necessary), sampling design and rationale, and SOPs or description of the procedure to be implemented.
- Project management and reporting, schedule, project organization and responsibilities, manpower and cost projections, and required deliverables.
- QA objectives and protocols including tables summarizing field sampling and QA/QC analysis and objectives.

Note that this list of QAWP components is not all-inclusive and that additional elements may be added or altered depending on the specific requirements of the field investigation. It should also be recognized that although a detailed QAWP is quite important, it may be impractical in some instances. Emergency responses and accidental spills are prime examples of such instances where time might prohibit the development of site-specific QAWPs prior to field activities. In such cases, investigators would have to rely on general guidelines and personal judgment, and the sampling or response plans might simply be a strategy based on preliminary information and finalized on site. In any event, a plan of action should be developed, no matter how concise or informal, to aid investigators in maintaining a logical and consistent order to the implementation of their task.

7.5 Legal Implications

The data derived from sampling activities are often introduced as critical evidence during litigation of a hazardous waste site cleanup. Legal issues in which sampling data are important may include cleanup cost recovery, identification of pollution sources and responsible parties, and technical validation of remedial design methodologies. Because of the potential for involvement in legal actions, strict adherence to technical and administrative SOPs is essential during both the development and implementation of sampling activities.

Technically valid sampling begins with thorough planning and continues through the sample collection and analytical procedures. Administrative requirements involve thorough, accurate

documentation of all sampling activities. Documentation requirements include maintenance of a chain of custody, as well as accurate records of field activities and analytical instructions. Failure to observe these procedures fully and consistently may result in data that are questionable, invalid and non-defensible in court, and the consequent loss of enforcement proceedings.

8.0 CALCULATIONS

Refer to the specific SOPs for any calculations which are associated with sampling techniques.

9.0 QUALITY ASSURANCE/ QUALITY CONTROL

Refer to the specific SOPs for the type and frequency of QA/QC samples to be analyzed, the acceptance criteria for the QA/QC samples, and any other QA/QC activities which are associated with sampling techniques.

10.0 DATA VALIDATION

Refer to the specific SOPs for data validation activities that are associated with sampling techniques.

11.0 HEALTH AND SAFETY

When working with potentially hazardous materials, follow U.S. EPA, OSHA, and corporate health and safety procedures.

CHIP, WIPE, AND SWEEP SAMPLING

SOP#: 2011
DATE: 11/16/94
REV. #: 0.0

1.0 SCOPE AND APPLICATION

This standard operating procedure (SOP) outlines the recommended protocol and equipment for collection of representative chip, wipe, and sweep samples to monitor potential surficial contamination.

This method of sampling is appropriate for surfaces contaminated with non-volatile species of analytes (i.e., PCB, PCDD, PCDF, metals, cyanide, etc.) Detection limits are analyte specific. Sample size should be determined based upon the detection limit desired and the amount of sample requested by the analytical laboratory. Typical sample area is one square foot. However, based upon sampling location, the sample size may need modification due to area configuration.

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, dependent on site conditions, equipment limitations or limitations imposed by the procedure or other procedure limitations. In all instances, the ultimate procedures employed should be documented and associated with the final report.

Mention of trade names or commercial products does not constitute U.S. EPA endorsement or recommendation for use.

2.0 METHOD SUMMARY

Since surface situations vary widely, no universal sampling method can be recommended. Rather, the method and implements used must be tailored to suit a specific sampling site. The sampling location should be selected based upon the potential for contamination as a result of manufacturing processes or personnel practices.

Chip sampling is appropriate for porous surfaces and is generally accomplished with either a hammer and chisel, or an electric hammer. The sampling device should be laboratory cleaned and wrapped in clean, autoclaved aluminum foil until ready for use. To collect the sample, a measured and marked off area is chipped both horizontally and vertically to an even depth of 1/8 inch. The sample is then transferred to the proper sample container.

Wipe samples are collected from smooth surfaces to indicate surficial contamination; a sample location is measured and marked off. While wearing a new pair of surgical gloves, a sterile gauze pad is opened, and soaked with solvent. The solvent used is dependent on the surface being sampled. This pad is then stroked firmly over the sample surface, first vertically, then horizontally, to ensure complete coverage. The pad is then transferred to the sample container.

Sweep sampling is an effective method for the collection of dust or residue on porous or non-porous surfaces. To collect such a sample, an appropriate area is measured off. Then, while wearing a new pair of disposable surgical gloves, a dedicated brush is used to sweep material into a dedicated dust pan. The sample is then transferred to the proper sample container.

Samples collected by all three methods are then sent to the laboratory for analysis.

3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

Samples should be stored out of direct sunlight to reduce photodegredation, cooled to 4°C and shipped to the laboratory performing the analysis. Appropriately sized laboratory cleaned, glass sample jars should be used for sample collection. The amount of sample required will be determined in concert with the analytical laboratory.

4.0 INTERFERENCES AND POTENTIAL PROBLEMS

This method has few significant interferences or problems. Typical problems result from rough porous

surfaces which may be difficult to wipe, chip, or sweep.

5.0 EQUIPMENT

Equipment required for performing chip, wipe, or sweep sampling is as follows:

- C Lab clean sample containers of proper size and composition
- C Site logbook
- C Sample analysis request forms
- C Chain of Custody records
- C Custody seals
- C Field data sheets
- C Sample labels
- C Disposable surgical gloves
- C Sterile wrapped gauze pad (3 in. x 3 in.)
- C Appropriate pesticide (HPLC) grade solvent
- C Medium sized laboratory cleaned paint brush
- C Medium sized laboratory cleaned chisel
- C Autoclaved aluminum foil
- C Camera
- C Hexane (pesticide/HPLC grade)
- C Iso-octane
- C Distilled/deionized water

6.0 REAGENTS

Reagents are not required for preservation of chip, wipe or sweep samples. However, reagents will be utilized for decontamination of sampling equipment.

7.0 PROCEDURES

7.1 Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and the types and amounts of equipment and supplies needed.

2. Obtain necessary sampling and monitoring equipment.

3. Decontaminate or preclean equipment, and ensure that it is in working order.

4. Prepare scheduling and coordinate with staff, clients, and regulatory agency, if appropriate.

5. Perform a general site survey prior to site entry in accordance with the site specific Health and Safety Plan.

6. Mark all sampling locations. If required the proposed locations may be adjusted based on site access, property boundaries, and surface obstructions.

7.2 Chip Sample Collection

Sampling of porous surfaces is generally accomplished by using a chisel and hammer or electric hammer. The sampling device should be laboratory cleaned or field decontaminated as per the Sampling Equipment Decontamination SOP. It is then wrapped in cleaned, autoclaved aluminum foil. The sampler should remain in this wrapping until it is needed. Each sampling device should be used for only one sample.

1. Choose appropriate sampling points; measure off the designated area. Photo documentation is optional.

2. Record surface area to be chipped.

3. Don a new pair of disposable surgical gloves.

4. Open a laboratory-cleaned chisel or equivalent sampling device.

5. Chip the sample area horizontally, then vertically to an even depth of approximately 1/8 inch.

6. Place the sample in an appropriately prepared sample container with a Teflon lined cap.

7. Cap the sample container, attach the label and custody seal, and place in a plastic bag. Record all pertinent data in the site logbook and on field data sheets. Complete the sampling analysis request form and chain of custody record before taking the next sample.

8. Store samples out of direct sunlight and cool to 4EC.

9. Follow proper decontamination procedures then deliver sample(s) to the laboratory for analysis.

7.3 Wipe Sample Collection

Wipe sampling is accomplished by using a sterile

gauze pad, adding a solvent in which the contaminant is most soluble, then wiping a pre-determined, pre-measured area. The sample is packaged in an amber jar to prevent photodegradation and packed in coolers for shipment to the lab. Each gauze pad is used for only one wipe sample.

1. Choose appropriate sampling points; measure off the designated area. Photo documentation is optional.

2. Record surface area to be wiped.

3. Don a new pair of disposable surgical gloves.

4. Open new sterile package of gauze pad.

5. Soak the pad with solvent of choice.

6. Wipe the marked surface area using firm strokes. Wipe vertically, then horizontally to insure complete surface coverage.

7. Place the gauze pad in an appropriately prepared sample container with a Teflon-lined cap.

8. Cap the sample container, attach the label and custody seal, and place in a plastic bag. Record all pertinent data in the site logbook and on field data sheets. Complete the sampling analysis request form and chain of custody record before taking the next sample.

9. Store samples out of direct sunlight and cool to 4°C.

10. Follow proper decontamination procedures, then deliver sample(s) to the laboratory for analysis.

7.4 Sweep Sample Collection

Sweep sampling is appropriate for bulk contamination. This procedure utilizes a dedicated, hand held sweeper brush to acquire a sample from a pre-measured area.

1. Choose appropriate sampling points; measure off the designated area. Photo documentation is optional.

2. Record the surface area to be swept.

3. Don new pair of disposable surgical gloves.

4. Sweep the measured area using a dedicated brush; collect the sample in a dedicated dust pan.

5. Transfer sample from dust pan to sample container.

6. Cap the sample container, attach the label and custody seal, and place in a plastic bag. Record all pertinent data in the site log book and on field data sheets. Complete the sampling analysis request form and chain of custody record before taking the next sample.

7. Store samples out of direct sunlight and cool to 4EC.

8. Leave contaminated sampling device in the sample material, unless decontamination is practical.

9. Follow proper decontamination procedures, then deliver sample(s) to the laboratory for analysis.

8.0 CALCULATIONS

Results are usually provided in mg/g, µg/g, mass per unit area, or other appropriate measurement. Calculations are typically done by the laboratory.

9.0 QUALITY ASSURANCE/ QUALITY CONTROL

The following general quality assurance procedures apply:

1. All data must be documented on standard chain of custody forms, field data sheets or within the site logbook.

2. All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation, and they must be documented.

The following specific quality assurance activities apply to wipe samples:

For wipe samples, a blank should be collected for each sampling event. This consists of a sterile gauze pad, wet with the appropriate solvent, and placed in a prepared sample container. The blank will help identify potential introduction of contaminants via the sampling methods, the pad, solvent or sample container. Spiked wipe samples can also be collected to better assess the data being generated. These are prepared by spiking a piece of foil of known area with a standard of the analyte of choice. The solvent containing the standard is allowed to evaporate, and the foil is wiped in a manner identical to the other wipe samples.

Specific quality assurance activities for chip and sweep samples should be determined on a site specific basis.

10.0 DATA VALIDATION

A review of the quality control samples will be conducted and the data utilized to qualify the environmental results.

11.0 HEALTH AND SAFETY

When working with potentially hazardous materials, follow EPA, OSHA and corporate health and safety procedures.

12.0 REFERENCES

U.S. EPA, A Compendium of Superfund Field Operation Methods. EPA/540/5-87/001.

NJDEP Field Sampling Procedures Manual, February, 1988.